

Patent Claims

1. An installation for recording travel- and/or traffic situations of vehicles, characterised by an arrangement to be attached to a vehicle (1), of at least two detection cameras (2, 3) lying at a distance (15) to one another, wherein their respective detection regions (11, 12) overlap or intersect in a common overlapping region (13), by which means at least one reference point (R) of the surroundings and/or recognition point (18, 19) at least of a second vehicle (17), recorded by two or more detection cameras (2, 3), may be triangulated (T), with the purpose, from a picture recording, of reconstructing its position and by way of this, the position and/or movement of at least one vehicle (1, 17) after an accident or after a critic traffic situation.
2. An installation according to claim 1, characterised in that the detection cameras (2, 3) are connected to at least one memory (6, 7, 8, 9), for storing recordings and/or data on their arrangement and/or on the vehicle (1).
3. An installation according to claim 1 or 2, characterised in that the distance (15) of the detection cameras (2, 3) amongst one another and/or their arrangement in a coordinate system (20) of a vehicle (1) is calibrated.
4. An installation according to claim 3, characterised in that the distance (15) of the detection cameras (2, 3) amongst one another and/or their arrangement in a coordinate system (20) of a vehicles (1) is secured in a memory
5. An installation according to one of the claims 1 - 4, characterised in that the detection cameras (2, 3) are connected to a time control (2, 3), in a manner such that their picture recording may be effected synchronised with respect to time.
6. An installation according to one of the claims 1 - 5, characterised in that the detection cameras (2, 3) are in each case designed for recording a picture sequence, for example 25 pictures per second.
7. An installation according to one of the claims 1 - 6, characterised in that the detection cameras (2, 3) are connected to a time measurement device, e.g. to a radio

clock, with the purpose of being able to determine the absolute time of the respective picture recording.

8. An installation according to one of the claims 1 - 7, characterised in that at least one sound recording device, e.g. a microphone (4, 5) is present.
9. An installation according to one of the claims 2- 8, characterised by a sensor, e.g. an acceleration sensor, for the automatic activation or for securing a data storage.
10. An installation according to one of the claims 2 - 9; characterised by an activation device, e.g. a button on the steering wheel, for the manual activation or for securing the data storage.
11. An installation according to one of the claims 2 - 10, characterised by at least one non-volatile memory (6, 7) in the manner of a circular buffer and by way of at least one further, non-volatile memory (8, 9) which is coupled to the memory (6,7) serving as a circular buffer.
12. An installation according to one of the claims 1 - 11, characterised by recognition points (18, 19, 23, 24, 25) detectable by detection cameras (2, 3), which are to be arranged on a vehicle (17) and/or in the region of traffic routes.
13. An installation according to claim 12, characterised in that the recognition points (18, 19, 23, 24, 25) are coded in shape and colour, e.g. in a manner such that each has its own shape in an arrangement of two or more recognition points (18, 19, 23, 24, 25).
14. An installation according to claim 12 or 13, characterised in that the recognition points (118, 19, 23, 24, 25) are designed illuminating in a passive manner, e.g. reflecting.
15. An installation according to claim 12 or 13, characterised in that the recognition points (18, 19, 23, 24, 25) are designed illuminating in an active manner, e.g. in the form of light diodes.

16. A method for evaluating recordings of travel and/or traffic situations created with the installation according to claim 1, characterised in that at least one reference point (R) and/or recognition point (18, 19, 23, 24, 25) recorded by two or more detection cameras (2, 3), is triangulated (T) with the purpose of reconstructing its position and by way of this, the position and/or movement of at least one vehicle (1, 17) after an accident or after a critic traffic situation.
17. A method according to claim 16, characterised in that the triangulation (R) is effected by picture processing and/or photogrammetry.
18. A method according to claim 16 or 17, characterised in that the computation of the position of the reference point or reference points (T) and/or recognition points (18, 19, 23, 24, 25) in the picture sequence of a picture recording is effected automatically in an apparatus programmable with suitable computation formulae, e.g. in a P.C.
19. A method according to claim 18, characterised in that the movements of at least one vehicle (1, 17) are computed from the position change of the reference point or reference points (T) or recognition points (18, 19, 23, 24, 25) in the picture sequence of a picture recording, e.g. the travel direction and any direction changes as well as speed and any speed changes, i.e. an acceleration or a braking procedure.
20. A method according to one of the claims 16-19, characterised in that in the computation of the position and/or movement of a vehicle (1, 17), the position of the detection cameras (2, 3) on a coordinate system (20) of this vehicle (1), and/or the position of recognition points (18, 19) on a coordinate system (21) at least of a second vehicle (17) are taken into account, wherein this data may be stored in a memory of the part of the installation arranged in the vehicle.
21. A method according to one of the claims 16-20, characterised in that a coordinate system (22) of the surroundings (22) flows into the computation of the position and/or movement of a vehicle (1, 17), wherein the picture of the surroundings may either be taken from the present picture recordings of the detection cameras (2, 3), or the surroundings may be recorded at a later stage.

22. A method according to claim 21, characterised in that reference points (R) or recognition points (23, 24) are allocated to the pictures of the surroundings, wherein it may be the case of points which are present in the surroundings in any case, e.g. on the central line of a road, on a crash barrier, or of reflecting points on a street post.
23. A method according to one of the claims 16 to 22, characterised in that the respective vehicle type is taken into account in the computation of the position and/or movement of a vehicle (1, 17), for which the data of this vehicle type e.g. may be inputted in a manual manner, or one may fall back on a data bank containing the data of a multitude of vehicle types.
24. A method according to one of the claims 21 - 23, characterised in that the position and the movement of one or more vehicles (1, 17) is projected into the picture of the surroundings and thus a virtual representation of the course of events of an accident or a critical traffic situation is computed and represented.